federal register

FRIDAY, FEBRUARY 28, 1975

WASHINGTON, D.C.

Volume 40 ■ Number 41

PART II

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

■

INTERSTATE MOTOR CARRIER NOISE EMISSION STANDARDS

Proposed Compliance Procedures

DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

[49 CFR Part 325]

[Docket No. MC-62; Notice No. 75-4]

INTERSTATE MOTOR CARRIER NOISE EMISSION STANDARDS

Compliance with Standards

The Director of the Bureau of Motor Carrier Safety is issuing this notice of proposed rule making for the purpose of inviting interested persons to comment on the text of proposed regulations establishing methodologies for determining whether commercial motor vehicles conform to the Interstate Motor Carrier Noise Emission Standards of the Environmental Protection Agency.

INTRODUCTION

On October 21, 1974, the Acting Administrator of the Environmental Protection Agency issued final regulations establishing standards for maximum external noise emissions of motor vehicles having a gross vehicle weight rating or a gross combination weight rating of more than 10,000 pounds that are operated by commercial motor carriers engaged in interstate commerce (39 FR 38208). Those regulations were issued under the authority of section 18 of the Noise Control Act of 1972. Section 18 of the Noise Control Act of 1972 also directs the Secretary of Transportation to promulgate regulations to ensure compliance with the Environmental Protection Agency's standards. The Secretary is required to carry out the regulations through the use of his powers and duties of enforcement authorized by the Interstate Commerce Act and the Department of Transportation Act. Those two statutes vest in the Department of Transportation the responsibility for issuing and enforcing the Federal Motor Carrier Safety Regulations.

The objective of the regulations under consideration at this time is to prescribe the manner in which commercial motor vehicles will be inspected and examined, and their performance will be monitored and measured, to determine whether they conform to the EPA standards. Those standards become effective on October 15, 1975 and, as noted above, are applicable only to motor vehicles with a GVWR or a GCWR of more than 10,000 pounds, which are operated by interstate motor carriers. The Department of Transportation has no statutory authority to alter or amend the EPA noise emission standards or to decline to issue procedures for their full enforcement. Therefore, the Director does not propose to reopen for consideration questions relating to the bases of the EPA noise emission standards which were fully considered and acted upon by EPA during the rulemaking proceeding in which it promulgated the Interstate Motor Carrier Noise Emission Standards. Those questions included, but were not limited to, (a) defining the "best available technology" consistent with the motor carrier industry's ability to comply with the standards; (b) cost of compliance; (c) Federal preemption of State and local noise laws and ordinances; (d) applicability of the standards to various weight classes of vehicles; and (e) the appropriate definition of an interstate motor carrier, to whose equipment the standards are applicable.

In the present rulemaking proceeding, the Director is concerned primarily with the following issues relating to the enforcement regulations now under consideration: (1) adequacy of the proposed rules to ensure that the EPA standards are fully enforced; (2) flexibility of the enforcement procedures specified in the proposed rules to ensure that enforcement agencies can make use of a wide range of measurement sites; and (3) technical validity of the proposed rules, in that they maintain, but do not decrease or increase, the stringency of the EPA standards.

In developing the proposed enforcement regulations, the Bureau of Motor Carrier Safety has given extensive consideration to the experience gained by enforcement personnel of the States of New York and California, the city of Chicago, and the New Jersey Turnpike Authority, which now operate programs of noise emission regulation and enforcement, as well as the enforcement experience of the Bureau's own personnel. Background studies of noise enforcement methodology prepared for those, and other, government agencies have been extensively consulted during the preparation of this proposal. Among the studies consulted were the following:

Research on Highway Noise Measurement Sites, Ben H. Sharp, Wyle Laboratories, El Segundo, CA, Prepared for California Highway Patrol under Contract No. C-219-71-72, March 1972.

Truck Noise—I, Peak A-Weighted Sound Levels Due to Truck Tires, National Bureau of Standards, prepared for U.S. Department of Transportation, Report No. OST-ONA-71-9, Sept. 1970.

Truck Noise—II, Interior and Exterior, A-Weighted Sound Levels of Typical Highway Trucks, W. H. Close and R. M. Clarke, U.S. Department of Transportation Report No. OST/TST 72-2, July 1972.

Field Measurement Procedures for Noise Enforcement, Bolt Beranek and Newman, Inc., Cambridge, MA, submitted to the Corporation Counsel, City of Chicago, Department of Environmental Control, July 1973.

Background Document for Interstate Motor Carrier Noise Emission Regulations, U.S. Environmental Protection Agency, EPA-550/9-74-017, October 1974.

Recomemndations: Vehicle Noise Emission Regulations and Measurement Procedures, C. W. Dietrich, Bolt Beranek and Newman, Inc., Cambridge, MA, Report No. 2782, submitted to New Jersey Turnpike Authority, Jan. 1974.

MEASUREMENT PROCEDURES

The measurement procedures the Director proposes to institute are basically identical to those now used by most agencies that currently enforce noise emission regulations. There are, however, some notable differences from those standard practices in this proposal. Among them are the following:

1. *Measurement tolerances.* The rules of the State of Hawaii and the city of Chicago currently specify a tolerance level to take into account the inaccuracy of sound level measurement systems as currently manufactured. The Director does not now intend to specify such a tolerance factor in the Bureau's enforcement regulations, even though the Bureau is aware of the fact that noise enforcing agencies routinely add or subtract tolerances of 1 to 2 dB to or from the observed noise emission levels of motor vehicles they monitor before considering enforcement action. The Director believes that if a tolerance factor is applied, it should be applied through the mechanism of administrative policy instructions to enforcement personnel, rather than by a specified tolerance level written into the enforcement regulations. This is the case because the tolerance level that is appropriate in one situation may be entirely inappropriate in others. Some of the variants are discussed below. In addition, the Director is cognizant of the fact that, under section 18(c)(1) of the Noise Control Act of 1972, State and local governments will have to utilize the procedures specified in the Federal regulations when they carry out their own motor carrier noise emission regulatory programs.

Tolerances are considered necessary for a number of reasons, such as limitament instruments and atmospheric contions in the accuracy of sound measureditions.

The specification to which sound level measurement systems are currently manufactured (*American National Standard Specification for Sound Level Meters,* ANSI S1.4-1971, of the American National Standards Institute) specifies a tolerance band for meter response. In the case of Type 1 meters, this tolerance band is ±1 dB(A) for A-weighting throughout the frequency range from 50 to 4,000 Hz. (At frequencies above or below this range, the tolerance exceeds ±1 dB.) In thec ase of Type 2 meters, this tolerance band is ±2 dB for A-weighting throughout the frequency range from 315 to 630 Hz and from 1,000 to 1,250 Hz. (Again, at frequencies above or below the specified range, the tolerance exceeds ±2 dB.) What this means is that, in the case of a Type 2 meter, for example, an observed meter reading may deviate as much as 2 dB from the actual A-weighted sound level generated by the noise source, even though the meter conforms to the specifications of ANSI S1.4-1971. It should be noted, however, that the deviations referred to in those specifications are measured at single, discrete frequencies. The overall frequency response tolerance of Type 1 and Type 2 meters to broad band (multi-frequency) noise is not specified in ANSI S1.4-1971. Nevertheless, the fact that ANSI S1.4-1971 permits deviations from the true reading

of the magnitude noted above indicates that enforcement tolerances are in order.

Weather conditions at and near a measurement site can have an effect on noise measurements at the site. The precise magnitude of these effects is not entirely known at present, but several published studies indicate that they exist.[1] Because of the above-mentioned variables and others, the Director has concluded that a tolerance factor to be subtracted from the observed meter reading would be warranted as a general operating practice. At the same time, the Director also has concluded that no single tolerance factor can, or should, be specified in the regulations. This is the case because differences in the circumstances under which measurements are made will require application of different tolerance factors. For example, the Bureau's enforcement staff will, in the initial phases of the Federal enforcement program, be using Type 2 sound level meters.

They will be conducting measurements at a large number of sites under varying weather conditions. In these circumstances, it is anticipated that a tolerance factor of 2 dB would be appropriate. On the other hand, a municipal government may be enforcing noise emission regulations using equipment meeting the ANSI requirements for Type 1 meters, and it may be using only a single site, with sound attenuation characteristic known to provide repeatable results, in relatively stable weather conditions. In this type of case, a smaller administrative tolerance, on the order of 1 dB, could possibly be justified.

For the foregoing reasons, the Bureau does not propose to establish enforcement tolerance factors in the proposed rules. The Bureau will be available to work with States and other government agencies to establish reasonable administrative tolerances for specific measurement conditions and locales. It is the opinion of the Bureau that motor carriers and manufacturers of motor vehicles would be best advised to apply no tolerance factor when testing the noise propagation characteristics of their equipment or products.

2. *Open site requirements.* The open site characteristics proposed in the text of the rules set forth below differ somewhat from those employed by some enforcement agencies. Figure A, below, shows the open site currently utilized by the California Highway Patrol, the city of Chicago, and the New Jersey Turnpike Authority.

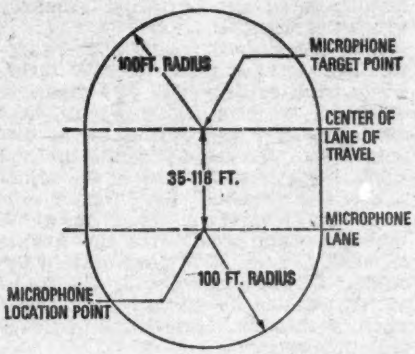

Figure A

Figure B, below, shows the open site referred to in the Environmental Protection Agency's *Background Document for Interstate Motor Carrier Noise Emission Regulations.*

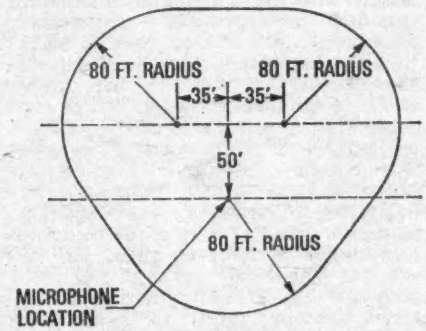

Figure B

The open site characteristics are specified with the intention of eliminating or minimizing the effects of sound that is reflected from surfaces that would not be present in a hypothetically "perfect" measurement site. The contribution that this reflected sound can make to the observed sound level reading varies; it is a function of several variables, including the acoustical properties of the reflecting surface and the distance between the surface and both the vehicle and the microphone of the sound level measurement system.

The Director is proposing to require measurements to be made at a site that has an open area around both the microphone and the vehicle for a distance equivalent to the distance between the microphone and the vehicle. This requirement is a compromise between the need for a test site that is, so far as practicable, free of reflecting surfaces—other than the ground—particularly in the critical area between the microphone and the vehicle—and the need to maximize the number of sites available for enforcement of the standards.

Because the open site distances are equal to the distance between the microphone and the vehicle, reflected sound waves will always have to travel a distance to reach the microphone (and so be detected by the measurement system) that is significantly greater than the distance the primary sound waves propagated by the vehicle must travel to reach the microphone. This will result in a substantial attenuation of reflected sound waves, so that the maximum contribution that reflected sound could make to an observed sound level reading would be negligible.

3. *Distance correction factors.* The distance correction factors in § 325.73 of the proposed rules do not provide for making measurements at distances closer than 35 feet from the vehicle or farther than 83 feet from the vehicle. This is a departure from the practice followed by California authorities, who permit measurements to be made at distances up to 118 feet. It is also a departure from the practice in several jurisdictions of allowing measurements to be made in the range from 25–35 feet.

There is good reason for these variations. The theory of measuring sound emissions is based on the premise that sound levels drop 6 dB every time the distance between the sound source and the receiver is doubled. This premise assumes that there is a single-point source radiating sound into free space. In the real world, this is obviously not the case. Motor vehicles do not emit noise from a single point. The fact that tires and numerous engine and other mechanical components emit noise makes for a complicated sound propagation source. The environment into which this noise is emitted is obviously not free space; indeed, in many cases, the environment is not even hemispherical free space because of variations in terrain at or near the test site. Accordingly, erratic "near field" effects may be found at measurement distances closer than 35 feet, making repeatable measurements at those distances difficult. For this reason, the proposal would not permit measurements made at distances closer than 35 feet from the centerline of the path of the vehicle to be used for enforcement purposes.

Measurements made at distances greater than 83 feet from the vehicle also pose open site and ambient sound level problems which make measurements at such distances impracticable as a general rule.

Therefore, the Director is proposing to restrict the range of measurement distances to not less than 35 feet and not more than 83 feet from the center of the path of vehicle travel. These restrictions are identical to those employed by the New Jersey Turnpike Authority, and their presence does not appear to have hampered the Authority's enforcement program.

4. *Ground surface correction factors.* The proposed rules take into account differences in the acoustical character-

[1] Ratering, E. G., *The Application of Vehicle Noise Test Results in the Regulatory Process,* in Proceedings: Conference on Motor Vehicle Noise, General Motors Corp. (1973); Hemdal, J. F., et al., *A Study of the Repeatability at Motor Vehicle Noise Measurement Sites,* Environmental Research Institute of Michigan, ERIM No. 301300–1–F (1974).

istics of different types of ground surfaces that may be found between the vehicle and the microphone. The Environmental Protection Agency, in issuing the standards, clearly intended that both high-speed and low-speed pass-by measurements would be made at typical roadside sites rather than in a laboratory situation. The sites that were used to accumulate the survey data typically had a short grass cover between the highway and the microphone location point. These types of sites are considered acoustically "soft" sites. When pass-by measurements are made at sites which have asphalt, concrete, or other acoustically "hard" surface material between the vehicle and the microphone, readings substantially higher than those observed at "soft" sites are obtained.

Accordingly, the Director proposes to require subtraction of a 2 dB correction factor from a measurement of noise emmissions during highway operations when the measurement is made at a "hard" site. Subtraction of that figure will ensure that the "hard" site measurement produces an observed reading substantially equivalent to the reading that would have been obtained if the measurement had been made at the "soft" site contemplated in the EPA standards.

Similarly, the Environmental Protection Agency, in promulgating its standard for noise emissions under stationary test, clearly contemplated a measurement to be conducted at an acoustically "hard" site. If a measurement is made at a "soft" site, it would fail to show accurately whether, and the extent to which, the vehicle either conforms to the standard or fails to conform to it, unless a correction factor is added to the observed sound level generated by the motor vehicle under stationary test. For this reason, the Director proposes a 2 dB correction factor to be added to observed sound levels generated by motor vehicles under stationary test at "soft" sites.

5. *Guard rails.* The Director is proposing to consider a test site adequate for noise emission measurements even though there are metal guard rails within the site. The purpose of this proposal is to make available for measurement purposes a large number of sites near major highways which contain no substantial sound-reflecting surfaces other than guard rails. Numerous potential sites are adjacent to four-lane divided highways, having continuous metal guard rails separating opposing lanes of traffic. The Bureau believes that the contribution of sound waves reflected off guard rails of that type to the overall observed sound level at a site adjacent to such a highway would be negligible. Nevertheless, the Director does not propose to allow guard rails within the measurement area, the area between the vehicle and the microphone.

6. *Visual tire inspection.* The EPA standard on tires (40 CFR 202.23) makes the use of tires having a tread pattern consisting mainly of cavities or pockets a violation if the tread of the tire when originally manufactured or newly remanufactured was composed primarily of cavities or pockets.

It is, of course, difficult for an inspector, looking at a motor vehicle during a roadside or terminal inspection, to determine whether the tire tread that meets his eyes is identical to, or different from, the tread that the tire had when it was new. To achieve the objective of the standard, the Director proposes to place on the motor carrier whose vehicle is equipped with a tire having a "cavity" or "pocket" tread pattern the burden of establishing that the tread pattern was of a permissible variety when originally manufactured or newly remanufactured.

Another feature of the tire standard that creates difficulties for enforcement agencies in the "savings" clause which absolves a mother carrier of liability for operating a motor vehicle on a tire having a prohibited tread pattern if the carrier "demonstrates it to be in compliance with the noise emission standard specified for operations on highways with speed limits of more than 35 MPH" (*i.e.*, the high-speed pass-by standard). The standard is mute on the subject of where the demonstration will be conducted. The Bureau frequently conducts inspections of motor vehicles at locations where a high-speed pass-by test cannot be made (*e.g.*, at carriers' terminals), and it does not appear practicable to make sound level measurements in conjunction with every visual tire inspection. For these reasons, the Director proposes that the motor carrier will be given the opportunity to demonstrate the vehicle's conformity to the high-speed noise emission standard for highway operations at a place and time to be selected by the Bureau. It may be that pass-by measurements are being made at the same time and place as visual tire inspections, in which event the demonstration can be performed at that time and place. But if the two enforcement activities are not being conducted jointly, the demonstration will have to be conducted at another time and place.

The Bureau has not found it necessary to make any provision in the proposed rules for measurement of noise emissions of motor vehicles operating at a speed of 65 miles per hour on highways having unlimited speed limits. By virtue of the enactment and implementation of section 2 of the Emergency Highway Energy Conservation Act, Pub. L. 93-239, and 23 U.S.C. 154, there is no highway without a posted speed limit in the United States, and the highest posted speed limit is 55 miles per hour.

7. *Vehicles equipped with fan clutches.* The proposed procedures would permit a vehicle equipped with a fan clutch to undergo the test for compliance with the standard for operation under stationary test while the fan clutch is disengaged. Experience with fan clutches indicates that they produce salutory results in the context of truck noise abatement, and that, accordingly, their installation should be encouraged in the interest of carrying out the purpose of the Noise Control Act.

As part of the "quiet truck program" sponsored by the Department of Transportation, International Harvester Company, a truck manufacturer, equipped the radiator fan drives of 24 heavy duty trucks with either "on-off" or modulating-type fan clutches. These devices were designed either to disengage the fan from its pulley drive completely or to reduce the radiator fan's rotational speed below that of the engine during periods of reduced engine cooling thermal load. It became apparent that installation of fan clutches produced a twofold benefit. First, with the fan either totally stopped or operating at a reduced rpm rate, radiator fan noise is significantly reduced. Reductions in fan-generated noise on the order of 20 dB(A) are typical when these types of devices are installed.[3] Second, the installation of a fan clutch results in a reduction or elimination of the engine horsepower that would otherwise be required to operate the radiator fan at times when its engine-cooling capability is not needed. As a result, the vehicle achieves a 5- to 10-percent saving in fuel consumption.[3]

Field tests of the 24 vehicles, involving more than 30,000 hours of vehicle operation and nearly 1,100,000 vehicle miles, indicated that the average fan-on time for vehicles equipped with an on-off type of fan clutch is slightly under 3 percent. Significant fan-on time[4] was less than 1 percent for vehicles equipped with this type of fan clutch. Significant fan-on time for vehicles equipped with modulated fan-drive clutch units was also less than 1 percent of total engine operating time, even during the warm summer months.

It is apparent, therefore, that installation of radiator fan-drive clutches results in significant noise abatment benefits as well as other benefits. The noise reduction associated with installation of fan clutches occurs between 97 and 99 percent of the time the vehicle is operating. In light of these benefits, the Director has concluded that widespread installation of fan clutches should be encouraged. He proposes, therefore, to require the stationary test of a vehicle equipped with a fan clutch to be performed with the clutch disengaged.

ENFORCEMENT

The Bureau at this time anticipates that it will conduct a program of enforcing the noise emission standards through the same techniques that are used to en-

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[3] Damkevala, R. J. et al., *Noise Control Handbook for Diesel Powered Vehicles*, U.S.D.O.T. Report No. DOT-TSC-OST-74-5 (1974).

[3] U.S.D.O.T. and U.S.E.P.A., *Study of Potential for Motor Vehicle Fuel Economy Improvement*, Truck and Bus Panel Report (1975).

[4] "Significant fan-on time" was defined as the period of time during which the fan operated at a speed of 1,600 rpm or more. This rpm level was selected because, at 1,600 rpm, fan noise would be approximately 10 dB(A) below its maximum level.

force the Federal Motor Carrier Safety Regulations. Inspection and surveillance of motor carriers will be carried out through terminal surveys and equipment inspection and driver-equipment compliance checks at roadside sites. Under the Noise Control Act, a violation of an EPA motor carrier noise emission standard gives rise to the possibility of imposing sanctions under section 11 of the Act. The sanctions include criminal prosecution of knowing or willful violators, in which the maximum sentence is a fine of $25,000 per day, imprisonment for 1 year, or both, in the case of first offenders, and a fine of $50,000 per day, imprisonment for 2 years, or both, in the case of subsequent offenders. In addition, section 11 authorizes the United States to secure an injunction against future violations in the appropriate United States District Court and permits the Administrator of the Environmental Protection Agency, after notice and the opportunity for hearing, to issue cease-and-desist orders against violators.

Section 18(b) of the Act authorizes the Secretary of Transportation to carry out the regulations for ensuring compliance with EPA noise emission standards "through the use of his powers and duties of enforcement and inspection authorized by the Interstate Commerce Act and the Department of Transportation Act." The basic "powers and duties" referred to in section 18(b) are derived from section 220 of the Interstate Commerce Act, 49 U.S.C. 320. Section 220 requires motor carriers to submit their properties and documents for inspection and examination by designated special agents of the Department of Transportation's Federal Highway Administration. This is the statutory basis for section 325.13 of the proposed rules. Section 220 also authorizes the Department of Transportation to require periodic and special reports from motor carriers subject to the Department's jurisdiction. It is on this basis that the Bureau now requires motor carriers whose equipment is found to be defective during a driver-equipment compliance check to make a report to the Bureau certifying that repairs have been made. See 49 CFR 396.5. The Bureau is considering adopting a similar procedure in the case of motor vehicles which are found to be in violation of the noise emission standards.

The use by the Bureau of the enforcement techniques described above does not limit or restrict the enforcement techniques or sanctions that a State or political subdivision thereof may employ in carrying out its motor carrier noise emission regulatory program, even after the effective date of the EPA standards and the Department of Transportation's regulations for implementing those standards. Section 18(c) of the Noise Control Act provides that, after the Federal regulations have become effective, a State or its political subdivisions may not adopt or enforce noise emission standards applicable to motor carriers subject to the Federal standards unless (1) the State or local standard is identical to the Federal standard; or (2) a special variance for a differing standard is granted by the Administrator of EPA after consultation with the Secretary of Transportation. It is the position of the Bureau that, while the "preemption" provisions of section 18(c) require States and their political subdivisions that have not secured a special variance to apply the identical criteria and measurement methodologies as are specified in Federal regulations to determine whether a motor vehicle is in conformity with noise emission standards, once a violation is detected, the State or local government may proceed to impose sanctions or take other corrective action in accordance with its own law. Thus, for example, a State could, if it wishes, bring a civil penalty proceeding against a violator, notwithstanding the fact that, under Federal law, the violation is a crime. Similarly, a State could, if its law permits, impound equipment found in violation of the noise emission standards, even though Federal law does not provide for impoundment as a sanction.

The rules under consideration at this time do not explicitly refer to the matters discussed here under the heading of "Enforcement." This is the case because the resolution of issues relating to the imposition of sanctions after violations of the noise emission standards are detected is a function of statutory construction rather than regulatory issuance. The discussion is included at this point in order to give interested persons insight into the Bureau's current thinking on these important issues.

In consideration of the foregoing, the Director of the Bureau of Motor Carrier Safety proposes to amend Subchapter A of Chapter III in title 49, CFR, by adding a new part 325, reading as set forth below.

Interested persons are invited to submit written data, views, or arguments pertaining to the proposed amendment. All comments submitted should refer to the docket number and notice number that appear at the top of this document. Comments should be submitted in triplicate to the Director, Bureau of Motor Carrier Safety, U.S. Department of Transportation, Washington, D.C. 20590. All comments received before the close of business on May 1, 1975 will be considered before further action is taken on the proposal. All comments received will be available for examination in the public Docket Room of the Bureau of Motor Carrier Safety, Room 3401, 400 Seventh Street, SW., Washington, D.C., both before and after the closing date for comments.

This notice of proposed rule making is issued under the authority of section 18 of the Noise Control Act of 1972, 42 U.S.C. 4917, the delegation of authority by the Secretary of Transportation at 49 CFR 1.48(p), and the delegation of authority by the Federal Highway Administrator at paragraph 7, Chapter 7, Part I of FHWA Order 1-1.

Issued on February 20, 1975.

ROBERT A. KAYE,
Director, Bureau of Motor Carrier Safety.

PART 325—COMPLIANCE WITH INTERSTATE MOTOR CARRIER NOISE EMISSION STANDARDS

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325.13 Inspection and examination of motor vehicles.

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325.91 Exhaust systems.
325.93 Tires.

AUTHORITY: The provisions of this Part 325 issued under sec. 18, 86 Stat. 1234, 1249–1250, 42 U.S.C. 4917.

Subpart A—General Provisions

§ 325.1 Scope of the rules in this Part.

(a) The rules in this Part prescribe procedures for the inspection, surveillance, and measurement of motor vehicles and motor vehicle equipment operated by motor carriers to determine whether those vehicles and that equipment conform to the Interstate Motor Carrier Noise Emission Standards of the Environmental Protection Agency, 40 CFR Part 202.

(b) Except as provided in paragraph (c) of this section, the rules in this Part apply to each motor vehicle operated by an interstate motor carrier, regardless of whether the motor vehicle is used in interstate or foreign commerce by the motor carrier.

(c) The rules in this Part do not apply to—

(1) A motor vehicle that has a Gross

Vehicle Weight Rating of 10,000 pounds (4,536 kg.) or less;

(2) A combination of motor vehicles that has a Gross Combination Weight Rating of 10,000 pounds (4,536 kg.) or less;

(3) The sound generated by a warning device, such as a horn or siren, installed in a motor vehicle;

(4) An emergency motor vehicle, such as a fire engine, an ambulance, a police van, or a rescue van, when it is responding to an emergency call;

(5) A snow plow in operation; or

(6) The sound generated by auxiliary equipment which is normally operated only when the motor vehicle on which it is installed is stopped or is operating at a speed of 5 miles per hour (8 kph) or less. Examples of that type of auxiliary equipment include, but are not limited to, cranes, asphalt spreaders, ditch diggers, liquid or slurry pumps, auxiliary air compressors, welders, and trash compactors.

§ 325.3 Effective date.

The rules in this Part are effective on October 15, 1975.

§ 325.5 Definitions.

(a) *Statutory definitions.* All terms defined in the Noise Control Act of 1972 (Pub. L. 92-574, 86 Stat. 1234) are used as they are defined in that Act.

(b) *Definitions in standards.* All terms defined in § 202.10 of the Interstate Motor Carrier Noise Emission Standards, 40 CFR 202.10, are used as they are defined in that section.

Subpart B—Administrative Provisions

§ 325.11 Issuance, amendment, and revocation of the rules in this Part.

The procedures specified in Part 389 of this Chapter for the issuance, amendment, or revocation of the Federal Motor Carrier Safety Regulations apply to rulemaking proceedings for the issuance, amendment, or revocation of the rules in this Part.

§ 325.13 Inspection and examination of motor vehicles.

(a) Any special agent of the Federal Highway Administration (designated in Appendix B to Subchapter B of this Chapter) is authorized to inspect, examine, and test a motor vehicle operated by a motor carrier in accordance with the procedures specified in this Part for the purpose of ascertaining whether the motor vehicle and equipment installed on the motor vehicle conform to the Interstate Motor Carrier Noise Emission Standards of the Environmental Protection Agency, 40 CFR Part 202.

(b) A motor carrier, its officers, drivers, agents, and employees must, at any time, submit a motor vehicle used in its operations for inspection, examination, and testing for the purpose of ascertaining whether the motor vehicle and equipment installed on it conform to the Interstate Motor Carrier Noise Emission standards of the Environmental Protection Agency, 40 CFR Part 202.

Subpart C—Instrumentation

§ 325.21 Scope of the rules in this subpart.

The rules in this subpart specify criteria for sound level measurement systems which are used to make the sound level measurements specified in Subpart D and Subpart E of this Part.

§ 325.23 Types of measurement systems which may be used.

The sound level measurement system must meet or exceed the requirements of *American National Standard Specification for Sound Level Meters* (ANSI S1.4–1971), approved April 27, 1971, issued by the American National Standards Institute,[1] throughout the frequency range of 50 to 10,000 Hz for either—

(a) A Type 1 sound level meter;

(b) A Type 2 sound level meter; or

(c) A Type S sound level meter which has—

(1) A-weighting frequency response;

(2) Fast dynamic characteristics of its indicating instrument; and

(3) Relative response level tolerances consistent with those of either a Type 1 or Type 2 sound level meter, as specified in section 3.2 of ANSI S1.4–1971.

§ 325.25 Calibration of measurement systems.

(a) The sound level measurement system must be calibrated at one or more frequencies in the range from 250 to 1,000 Hz at the beginning and at the end of each series of measurements. The sound level measurement system must also be calibrated at one or more of those frequencies immediately after measurement of a violation of a Standard in 40 CFR 202.20 or 40 CFR 202.21.

(b) The calibrator used to calibrate the sound level measurement system in accordance with paragraph (a) of this section must produce a sound pressure level at the microphone that is known to be accurate within a tolerance of ±1.0 dB of the sound pressure level of a prescribed source. The calibrator must have been checked within the preceding year by its manufacturer, a representative of its manufacturer, or a person of equivalent special competence to verify that its output meets the manufacturer's design criteria.

§ 325.27 Use of a windscreen.

A windscreen shall be installed on the microphone of the sound level measurement system. Installation of the windscreen shall not cause a change in the sensitivity of the system of more than ±0.5 dB in the frequency range from 0 to 5 kHz or more than ±2.0 dB in the frequency range from 5 kHz to 8 kHz.

[1] Copies of the specification may be secured from American National Standards Institute, 1430 Broadway, New York, New York 10018.

Subpart D—Measurement of Noise Emissions; Highway Operations

§ 325.31 Scope of the rules in this subpart.

The rules in this subpart specify conditions and procedures for measurement of the sound level generated by a motor vehicle engaged in a highway operation for the purpose of ascertaining whether the motor vehicle conforms to the Standards for Highway Operations set forth in 40 CFR 202.20.

§ 325.33 Site characteristics; highway operations.

(a) Measurements shall be made at a test site which is adjacent to, and includes a portion of, a travelled lane of a public highway. A microphone target point shall be established on the centerline of the travelled lane of the highway, and a microphone location point shall be established on the ground surface not less than 35 feet (10.7 m.) or more than 83 feet (25.3 m.) from the microphone target point and on a line that is perpendicular to the centerline of the travelled lane of the highway and that passes through the microphone target point. In the case of a standard test site, the microphone location point is 50 feet (15.2 m.) from the microphone target point. Within the test site is a triangular measurement area. A plan view diagram of a standard test site, having an open site within a 50-foot (15.2 m.) radius of both the microphone target point and the microphone location point, is shown in Figure 1. Measurements may be made at a test site having smaller or greater dimensions in accordance with the rules in subpart F of this Part.

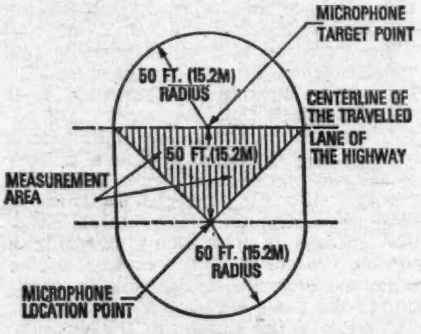

Figure 1
STANDARD TEST SITE; HIGHWAY OPERATIONS

(b) The test site must be an open site, essentially free of large sound-reflecting objects. The following objects may be within the test site if they are outside of the triangular measurement area of the site:

(1) Fire hydrants.

(2) Telephone and other utility poles.

(3) Rural mailboxes.

(4) Guardrails of any type of construction except solid concrete barriers.

(5) Any vertical surface (such as a billboard), regardless of size, having a lower edge more than 15 feet (4.6 m.) higher than the surface of the traveled lane of the highway.

(6) Any uniformly smooth sloping surface slanting away from the highway (such as a rise in grade alongside the highway) with a slope that is less than 45 degrees above the horizontal.

(7) Any surface slanting away from the highway that is 45 degrees or more and not more than 90 degrees above the horizontal, if all points on the surface are more than 15 feet (4.6 m.) above the surface of the traveled lane of the highway.

(c) One or more curbs having a vertical height of 1 foot (.3 m.) or less may be within the test site (including the triangular measurement area of the site). However, the test site must be free of any curb with a vertical height exceeding 1 foot (.3 m).

(d) The surface of the ground within the measurement area must be flat to within +2 feet (+.6 m.) and −6 feet (−1.8 m.) of a horizontal plane passing through the centerline of the travelled lane of the highway. Except for the highway and its adjacent shoulder, the surface of the ground within the measurement area of a standard test site must be predominantly covered with grass or other ground cover. However, if the surface of the ground within the measurement area (exclusive of the highway and its adjacent shoulder) is predominantly covered with concrete, asphalt, packed dirt, gravel, snow, or similar reflective material, the correction factor specified in § 325.75 applies to the measurement.

(e) The travelled lane of the highway within the test site must be dry, paved with relatively smooth concrete or asphalt, and free of—

(1) Holes or other defects which would cause a motor vehicle to emit irregular tire noises or body or chassis impact noises; and

(2) Loose material, such as gravel or sand.

(f) The travelled lane of the highway on which the microphone target point is situated must not pass through a tunnel or underpass located within 100 feet (30.5 m.) of that point.

§ 325.35 Ambient conditions; highway operations.

(a) *Sound.* The ambient A-weighted sound level at the microphone location point, measured with fast meter response using a sound level measurement system that conforms to the rules in § 325.23, must not exceed the level specified in Table 1 or Table 2 set forth below.

TABLE 1.—*Measurements Made at "Soft" Test Site as Specified in § 325.23(d)*

If the distance between the microphone location point and the microphone target point is—	The maximum ambient sound level for tests at highways with a posted speed limit of 35 mph (56.3 kph) or less is—	The maximum ambient sound level for tests at highways with a posted speed limit of more than 35 mph (56.3 kph) is—
35 feet (10.7 m.) or more but less than 39 feet (11.9 m.)	79 dB(A)	83 dB(A)
39 feet (11.9 m.) or more but less than 43 feet (13.1 m.)	78 dB(A)	82 dB(A)
43 feet (13.1 m.) or more but less than 48 feet (14.6 m.)	77 dB(A)	81 dB(A)
48 feet (14.6 m.) or more but less than 58 feet (17.1 m.)	76 dB(A)	80 dB(A)
58 feet (17.1 m.) or more but less than 70 feet (21.3 m.)	75 dB(A)	79 dB(A)
70 feet (21.3 m.) or more but less than 83 feet (25.3 m.)	74 dB(A)	78 dB(A)

TABLE 2.—*Measurements Made at "Hard" Test Site as Specified in § 325.75(a)*

If the distance between the microphone location point and the microphone target point is—	The maximum ambient sound level for tests at highways with a posted speed limit of 35 mph (56.3 kph) or less is—	The maximum ambient sound level for tests at highways with a posted speed limit of more than 35 mph (56.3 kph) is—
35 feet (10.7 m.) or more but less than 39 feet (11.9 m.)	81 dB(A)	85 dB(A)
39 feet (11.9 m.) or more but less than 43 feet (14.6 m.)	80 dB(A)	84 dB(A)
43 feet (14.6 m.) or more but less than 48 feet (14.6 m.)	79 dB(A)	83 dB(A)
48 feet (14.6 m.) or more but less than 58 feet (17.1 m.)	78 dB(A)	82 dB(A)
58 feet (17.1 m.) or more but less than 70 feet (21.3 m.)	77 dB(A)	81 dB(A)
70 feet (21.3 m.) or more but less than 83 feet (25.3 m.)	76 dB(A)	80 dB(A)

(b) *Wind.* The average continuous wind velocity and the gust wind velocity must not exceed 12 miles per hour (19.3 kph) at the microphone of the sound level measurement system.

(c) *Precipitation.* Measurements must not be made while it is raining or snowing at the test site.

§ 325.37 Location and operation of sound level measurement system; highway operations.

(a) The microphone of a sound level measurement system that conforms to the rules in § 325.23 shall be located as follows:

(1) If the microphone location point is at or below a horizontal plane that intersects the microphone target point, the microphone shall be positioned above the microphone location point so that it is not less than 3½ feet (1.1 m.) and not more than 4½ feet (1.4 m.) above that horizontal plane.

(2) If the microphone location point is above a horizontal plane that intersects the microphone target point, the microphone shall be positioned above the microphone location point so that it is at least 3½ feet (1.1 m.) above that point, not more than 4½ feet (1.4 m.) above that point, and not more than 6 feet (1.8 m.) above that horizontal plane.

(b) When the sound level measurement system is hand held or is otherwise monitored by a person located near its microphone, the holder or monitor must orient himself so that his torso—

(1) Is at least 2 feet (.6 m.) from the system's microphone;

(2) Is facing in a direction parallel to the centerline of the travelled lane of the highway; and

(3) Is not located between the microphone location point and the microphone target point.

(c) The microphone of the sound level measurement system shall be oriented toward the traveled lane of the highway at the microphone target point at an angle that is consistent with the recommendation of the system's manufacturer. If the manufacturer of the system does not recommend an angle of orientation for its microphone, the microphone shall be oriented toward the highway at an angle of not less than 70 degrees and not more than perpendicular to the horizontal plane of the traveled lane of the highway at the microphone target point.

(d) The sound level measurement system shall be set to the A-weighting network and "fast" meter response mode.

§ 325.39 Measurement procedure; highway operations.

(a) In accordance with the rules in this subpart, a measurement shall be made of the sound level generated by a motor vehicle operating through the measurement area on the traveled lane of the highway within the test site, regardless of the highway grade, load, acceleration or deceleration.

(b) The sound level generated by the motor vehicle is the highest reading observed on the sound level measurement system as the vehicle passes through the measurement area, corrected, when appropriate, in accordance with the rules in subpart F of this Part. However, the sound level reading is valid only if the observed sound level of the vehicle being measured, before application of any correction factor, is observed to rise at

least 6 dB(A) before the maximum sound level occurs and to fall at least 6 dB(A) after the maximum sound level occurs.

NOTE.—The Standards for Highway Operations specify a maximum permissible corrected sound level reading of 86 db(A) on highways with speed limits of 35 MPH or less and 90 dB(A) on highways with speed limits of more than 35 MPH when measured at a standard test site at a distance of 50 feet. See 40 CFR 202.20.

Subpart E—Measurement of Noise Emissions; Stationary Test

§ 325.51 Scope of the rules in this subpart.

(a) The rules in this subpart specify conditions and procedures for measuring the sound level generated by a motor vehicle when the vehicle's engine is accelerated from idle with wide open throttle to governed speed with the vehicle stationary, its transmission in neutral, and its clutch engaged, for the purpose of ascertaining whether the motor vehicle conforms to the Standard for Operation Under Stationary Test, 40 CFR 202.21.

(b) The rules in this subpart apply only to a motor vehicle that is equipped with an engine speed governor.

§ 325.53 Site characteristics; stationary test.

(a) The motor vehicle to be tested shall be parked on the test site. A microphone target point shall be established on the ground surface of the site on the centerline of the lane in which the motor vehicle is parked at the point on that centerline which is intersected by a transverse plane passing through the front face of the vehicle's front bumper. A microphone location point shall be established on the ground surface not less than 35 feet (10.7 m.) and not more than 83 feet (25.3 m.) from the microphone target point on the ground surface not less than 35 feet (10.7 m.) centerline of the lane in which the vehicle is parked and that passes through the microphone target point. In the case of a standard test site, the microphone location point is 50 feet (15.2 m.) from the microphone target point. Within the test site is a triangular measurement area. A plan view diagram of a standard test site, having an open site within a 50-foot (15.2 m.) radius of both the microphone target point and the microphone location point, is shown in Figure 2. Measurements may be made at a test site having smaller or greater dimensions in accordance with the rules in subpart F of this Part.

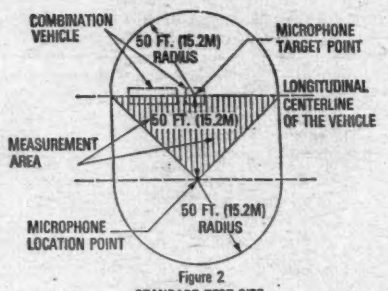

Figure 2
STANDARD TEST SITE; STATIONARY TEST

(b) The test site must be an open site, essentially free of large sound-reflecting objects. The following objects may be within the test site if they are outside the triangular measurement area of the site:

(1) Fire hydrants.
(2) Telephone and other utility poles.
(3) Rural mailboxes.
(4) Guard rails of any type of construction except solid concrete barriers.
(5) Any vertical surface, regardless of size (such as a billboard), having a lower edge more than 15 feet (4.6 m.) above the ground.
(6) Any uniformly smooth surface slanting away from the vehicle with a slope that is less than 45 degrees above the horizontal.
(7) Any surface slanting away from the vehicle that is 45 degrees or more and not more than 90 degrees above the horizontal, if all points on the surface are more than 15 feet (4.6 m.) above the surface of the ground in the test site.

(c) One or more curbs having a height of 1 foot (.3 m.) or less may be within the test site (including the triangular measurement area of the site). However, the test site must be free of any curb with a vertical height exceeding 1 foot (.3 m.).

(d) (1) Except as provided in paragraph (d) (2) of this section, the surface of the ground within the measurement area must be—

(i) Flat and level to within +2 feet (+6 m.) and —6 feet (—1.8 m.) of the ground surface at the microphone target point;

(ii) Predominantly paved with relatively smooth concrete or asphalt or predominantly covered with packed dirt or gravel; and

(iii) Free of snow.

(2) If the surface of the ground within the measurement area is predominantly covered with grass or other vegetation, the correction factor specified in § 325.75 applies to the measurement.

§ 325.55 Ambient conditions; stationary test.

(a) *Sound.* The ambient A-weighted sound level at the microphone location point, measured with fast meter response using a sound level measurement system that conforms to the rules in § 325.23 must not exceed the level specified in Table 3 set forth below.

TABLE 3.—*Ambient Sound Levels; Measurements Under Stationary Test*

If the distance between the microphone location point and the microphone target point is—	The maximum ambient sound level for tests at a "hard" site as specified in § 325.53(d) is—	The maximum ambient sound level for tests at a "soft" site as specified in § 325.75(b) is—
35 feet (10.7 m.) or more but less than 39 feet (11.9 m.)	81 dB(A)	79 dB(A)
39 feet (11.9 m.) or more but less than 43 feet (13.1 m.)	80 dB(A)	78 dB(A)
43 feet (13.1 m.) or more but less than 48 feet (14.6 m.)	79 dB(A)	77 dB(A)
48 feet (14.6 m.) or more but less than 58 feet (17.1 m.)	78 dB(A)	76 dB(A)
58 feet (17.1 m.) or more but less than 70 feet (21.3 m.)	77 dB(A)	75 dB(A)
70 feet (21.3 m.) or more but less than 83 feet (25.3 m.)	76 dB(A)	74 dB(A)

(b) *Wind.* The average continuous wind velocity and the gust wind velocity must not exceed 12 miles per hour (19.3 kph) at the microphone of the sound level measurement system.

(c) *Precipitation.* Measurements must not be made while it is raining or snowing at the test site.

§ 325.57 Location and operation of sound level measurement system; stationary test.

(a) The microphone of a sound level measurement system that conforms to the rules in § 325.23 shall be positioned not less than 3½ feet (1.1 m.) and not more than 4½ feet (1.4 m.) above the microphone location point.

(b) When the sound level measurement system is hand held or is monitored by a person located near its microphone, the holder or monitor must orient himself so that his torso—

(1) is at least 2 feet (.6 m.) from the system's microphone;

(2) Is facing in a direction parallel to the longitudinal centerline of the motor vehicle; and

(3) Is not located between the microphone location point and the microphone target point.

(c) The microphone of the sound level measurement system shall be oriented toward the vehicle at an angle that is consistent with the recommendation of the system's manufacturer. If the manufacturer of the system does not recommend an angle or orientation for its microphone, the microphone shall be oriented at an angle of not less than 70 degrees and not more than perpendicular to the horizontal plan of the test site at the microphone target point.

(d) The sound level measurement system shall be set to the A-weighting network and "fast" meter response mode.

§ 325.59 Measurement procedure; stationary test.

In accordance with the rules in this subpart, a measurement shall be made of the sound level generated by a stationary motor vehicle as follows:

(a) Park the motor vehicle on the test site as specified in § 325.53 of this subpart. If the motor vehicle is a combination (articulated) vehicle, park the combination so that the longitudinal centerlines of the towing vehicle and the towed vehicle or vehicles are in substantial alignment.

(b) Turn off all auxiliary equipment which is installed on the motor vehicle and which is designed to operate under normal conditions only when the vehicle is operating at a speed of 5 miles per hour (8 kph) or less. Examples of such equipment include cranes, asphalt spreaders, liquid or slurry pumps, auxiliary air compressors, welders, and trash compactors.

(c) If the motor vehicle's engine radiator fan drive is equipped with a clutch or similar device that automatically either reduces the rotational speed of the fan or completely disengages the fan from its power source in response to reduced engine cooling loads, park the vehicle before testing with its engine off or idling for sufficient time, but not more than 10 minutes, to permit the engine radiator fan to be automatically disengaged when the vehicle's noise emissions are measured under stationary test.

(d) With the motor vehicle's transmission in neutral and its clutch engaged, accelerate the vehicle's engine from idle to its maximum governed speed at wide open throttle. Return the engine's speed to idle.

(e) Observe the maximum reading on the sound level measurement system during the time the procedures specified in paragraph (c) of this section are followed. Record that reading, if the reading has not been influenced by extraneous noise sources such as motor vehicles operating on adjacent roadways.

(f) Repeat the procedures specified in paragraphs (d) and (e) of this section until two maximum sound level readings within 2 dB(A) of each other are recorded. Numerically average those two maximum sound level readings. When appropriate, correct the average figure in accordance with the rules in subpart F of this Part.

(g) The average figure, corrected as appropriate, obtained in accordance with paragraph (f) of this section, is the sound level generated by the motor vehicle for the purpose of determining whether it conforms to the Standard for Operation Under Stationary Test, 40 CFR 202.21.

NOTE.—The Standard for Operation Under Stationary Test specifies a maximum corrected sound level reading of 88 dB(A) when measured at a standard test site at a distance of 50 feet. See 40 CFR 202.21.

Subpart F—Correction Factors

§ 325.71 Scope of the rules in this subpart.

(a) The rules in this subpart specify correction factors which are added to, or subtracted from, the reading of the sound level generated by a motor vehicle, as displayed on a sound level measurement system, during measurement of the motor vehicle's sound level emissions at a test site which is not a standard site.

(b) The purpose of adding or subtracting a correction factor is to equate the sound level reading actually generated by the motor vehicle to the sound level reading it would have generated if the measurement had been made at a standard test site.

§ 325.73 Microphone distance correction factors.

If the distance between the microphone location point and the microphone target point is other than 50 feet (15.2 m), the maximum observed sound level reading generated by the motor vehicle in accordance with § 325.39 of this Part or the numerical average of the recorded maximum observed sound level readings generated by the motor vehicle in accordance with § 325.59 shall be corrected as specified in the following table:

TABLE 4—DISTANCE CORRECTION FACTORS

If the distance between the microphone location point and the microphone target point is:	*The value (dB(A)) to be applied to the observed sound level reading is—*
35 feet (10.7 m) or more but less than 39 feet (11.9 m)	−3
39 feet (11.9 m) or more but less than 43 feet (13.1 m)	−2
43 feet (13.1 m) or more but less than 48 feet (14.6 m)	−1
48 feet (14.6 m) or more but less than 58 feet (17.1 m)	0
58 feet (17.1 m) or more but less than 70 feet (21.3 m)	+1
70 feet (21.3 m) or more but less than 83 feet (25.3 m)	+2

§ 325.75 Ground surface correction factors.

(a) *Highway operations.* When measurements are made in accordance with the rules in subpart D of this Part upon a test site at which the measurement area (exclusive of the travelled lane of the highway and the shoulder of that lane) is predominantly covered with concrete, asphalt, packed dirt, gravel, or similar reflective material, a correction factor of 2 dB(A) shall be subtracted from the maximum observed sound level reading generated by the motor vehicle to determine whether the motor vehicle conforms to the Standards for Highway Operations, 40 CFR 202.20.

(b) *Stationary test.* When measurements are made in accordance with the rules in subpart E of this Part upon a test site at which the measurement area is predominantly covered with grass or other ground cover, a correction factor of 2 dB(A) shall be added to the numerical average of the recorded maximum observed sound level readings generated by the motor vehicle to determine whether the motor vehicle conforms to the Standard for Operation Under Stationary Test, 40 CFR 202.21.

§ 325.77 Computation of open site requirements—nonstandard sites.

(a) If the distance between the microphone location point and the microphone target point is other than 50 feet (15.2 m.), the test site must be an open site within a radius from both points which is equal to the distance between the microphone location point and the microphone target point.

(b) Plan view diagrams of nonstandard test sites are shown in Figures 3 and 4. Figure 3 illustrates a test site which is smaller than a standard test site and is based upon a 35-foot (10.7-m.) distance between the microphone location point and the microphone target point. (See § 325.79(b)(1) for an example of the application of the correction factor to a sound level reading obtained at such a site.) Figure 4 illustrates a test site which is larger than a standard test site and is based upon a 60-foot (18.3-m.) distance between the microphone location point and the microphone target point. (See § 325.79(b)(2) for an example of the correction factor to a sound level reading obtained at such a site.)

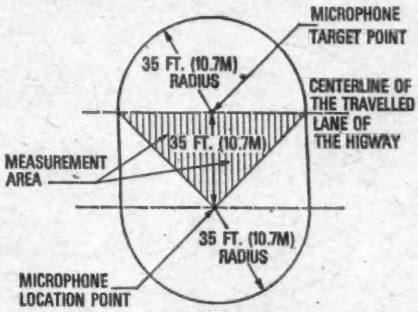

Figure 3
NON-STANDARD TEST SITE;
(35 FT.(10.7M) DISTANCE BETWEEN
MICROPHONE LOCATION AND TARGET POINTS)

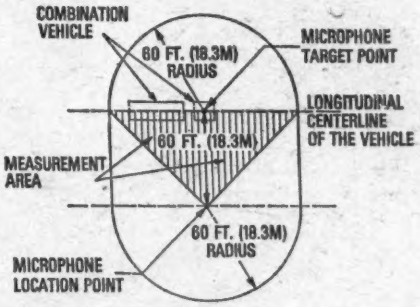

Figure 4
NON-STANDARD TEST SITE;
(60 FT (18.3M) DISTANCE BETWEEN
MICROPHONE LOCATION AND TARGET POINTS)

§ 325.79 Application of correction factors.

(a) If two correction factors apply to a measurement, both are applied cumulatively.

(b) The following examples illustrate the application of correction factors to sound level measurement readings:

(1) *Example 1—Highway operations.* Assume that a motor vehicle generates a maximum observed sound level reading of 93 dB(A) during a measurement in accordance with the rules in subpart D of this Part. Assume also that the distance between the microphone location point and the microphone target point was 35 feet (10.7 m.) and that the measurement area of the test site was acoustically "hard," *e.g.*, paved with asphalt. The corrected sound level generated by the motor vehicle would be 88 dB(A), calculated as follows:

93 dB(A)	Uncorrected reading
−3 dB(A)	Distance correction factor
−2 dB(A)	Ground surface correction factor
88 dB(A)	Corrected reading.

(2) *Example 2—Stationary test.* Assume that a motor vehicle generates maximum sound level readings which average 86 dB(A) during a measurement in accordance with the rules in subpart E of this Part. Assume also that the distance between the microphone location point and the microphone target point was 60 feet (18.3 m.), and that the measurement area of the test site was covered with grass. The corrected sound level generated by the motor vehicle would be 89 dB(A), calculated as follows:

86 dB(A)	Uncorrected average of readings
+1 dB(A)	Distance correction factor
+2 dB(A)	Ground surface correction factor
89 dB(A)	Corrected reading.

Subpart G—Exhaust Systems and Tires

§ 325.91 Exhaust systems.

A motor vehicle does not conform to the exhaust system requirements of the Interstate Motor Carrier Noise Emission Standards, 40 CFR 202.22, if inspection of the exhaust system of the motor vehicle discloses that the system—

(a) Has a defect which adversely affects sound reduction, such as exhaust gas leaks or alteration or deterioration of muffler elements;

(b) Is not equipped with either a muffler or other noise dissipative device, such as a turbocharger (supercharger driven by exhaust gases); or

(c) Is equipped with a cut-out, bypass, or similar device.

§ 325.93 Tires.

(a) Except as provided in paragraph (b) of this section, a motor vehicle does not conform to the tire requirements of the Interstate Motor Carrier Noise Emission Standards, 40 CFR 202.23, if inspection of any tire on which the vehicle is operating discloses that the tire has a tread pattern composed primarily of cavities in the tread (excluding sipes and local chunking) which are not vented by grooves to the tire shoulder or circumferentially to each other around the tire.

(b) Paragraph (a) of this section does not apply to a motor vehicle operated on a tire having a tread pattern of the type specified in that paragraph, if the motor carrier who operates the motor vehicle demonstrates to the satisfaction of the Director of the Bureau of Motor Carrier Safety or his designee that either—

(1) The tire did not have that type of tread pattern when it was originally manufactured or newly remanufactured; or

(2) The motor vehicle generates a maximum sound level reading of 90 dB (A) or less when measured at a standard test site for highway operations at a distance of 50 feet and under the following conditions:

(i) The measurement must be made at a time and place and under conditions specified by the Director or his designee.

(ii) The motor vehicle must be operated on the same tires that were installed on it when the inspection specified in paragraph (a) of this section occurred.

(iii) The motor vehicle must be operated on a highway having a posted speed limit of more than 35 miles per hour (56.3 kph).

(iv) The sound level measurement must be made while the motor vehicle is operating at the posted speed limit.

[FR Doc. 75-5068 Filed 2-27-75;8:45 am]